## REMARKS

This responds to the Office Action mailed on September 27, 2005. By this response to the Office Action of September 27, 2005 no claims are amended or canceled. Claims 8-11 were added. As a result, claims 1-11 are now pending in this application. Reconsideration of this application in view of the above amendments and the following remarks is hereby requested.

### *§102 Rejection of the Claims*

**A. 35 USC § 102 Rejection:** Claim 5 was rejected under 35 USC § 102(b) as being anticipated by Toy et al. (U.S. 5,982,038).

**B. Response to 35 USC § 102 Rejection:** Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ 2d 1897, 1908 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). It is not enough, however, that the prior art reference discloses all the claimed elements in isolation. Rather, "[a]nticipation requires the presence in a single prior reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*" *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added).

Claim 5 recites "...applying a current to the solder preform until the solder preform melts to seal a metal cover to the insulating base." The Toy et al. fails to teach this element. The Toy et al. reference fails to teach applying current to the solder preform until the solder preform melts. Toy et al. teaches the use of a solder seal. (See column 5, lines 12-14 of Toy et al.). However, the Toy et al. reference falls short of teaching any method for melting the solder seal. providing "...A cap sealant or solder seal 23...in order to secure the cap or cover 20, to the substrate or module 10." (See column 5, lines 12-14 of the Toy et al. reference). The Examiner then contends that the element of applying a current to the solder preform is disclosed at column 4, lines 50-54 of the Toy et al. reference (see the last paragraph of the 35 USC § 102(b) rejection

on page 2 of the Office Action dated September 27, 2005). This section uses the word "current" in referring to the "current invention" (See column 4, lines 50-51). There is no teaching of the element of applying a current at the location cited by the Examiner.

Furthermore, an electronic search of Toy et al. reference at the uspto.gov website did not yield the element of applying a current to the solder preform. The Toy et al. reference only used of the word current in the specification when referring to the "current invention" (See column 4, lines 50-51, and column 12, line 17 of the Toy et al. reference). The Examiner admits that the Toy et al. reference fails to teach this element on page 3 of the Office Action dated September 27, 2005. The Examiner states that "Toy et al. discloses all the fearuses of the claimed invention as discussed above, but does not disclose applying a current to the solder preform until the solder preform melts to seal a metal cover to the insulating base." (Underlining added, see page 3, sixth paragraph of the Office Action dated September 27, 2005). Seemingly, the Examiner must decide whether the Toy et al. reference teaches this element or does not. Applicant submits once again that this element is not taught. As a result, the Toy et al. reference does not anticipate claim 5 since the Toy et al. reference fails to disclose of each and every element of the claimed invention, much less each and every element arranged as in the claim. Accordingly, claim 5 overcomes the Examiner's rejection under 35 USC § 102(b) as being anticipated by Toy et al. (U.S. 5,982,038).

*§103 Rejection of the Claims*

Claims 1-2 and 6-7 were rejected under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Heschel (U.S. 6,818,464).

Claims 3-4 were rejected under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Ma et al. (U.S. 6,709,898).

**A. 35 USC § 103 Rejection:** Claims 1-2 and 6-7 were rejected under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Heschel (U.S. 6,818,464).

**B. Response to 35 USC § 103 Rejection:** In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion

or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 1 recites "A method of manufacturing an optoelectronic package having an insulating base with multiple conductive vias running through the insulating base, and having a metal cover that at least partially encloses an optoelectronic device mounted on the insulating base, the method comprising...applying a current through the multiple conductive vias to heat the solder preform to melt." The Toy et al. reference fails to teach or suggest several elements as now claimed. The Examiner has admitted twice that Toy et al. does not teach "...applying a current to the solder preform until the solder preform melts to seal a metal cover to the insulating base." (See top of page 4 of the Office Action dated March 14, 2005, and page 3, sixth paragraph of the Office Action dated September 27, 2005). It follows, that the Toy et al. reference, therefore does not teach or suggest applying a current through the multiple conductive vias in the insulating base to heat the solder preform as recited in claim 1. In addition, the Toy et al. reference does not teach or suggest an optoelectronic package, or a metal cover that at least partially encloses an optoelectronic device. One of the purposes of Toy et al. is to "provide for a fluid-tight seal." Another "...purpose of this invention is to have a hermetic seal."

The Examiner relies on the Heschel reference for providing the missing elements. The Examiner contends that Hescel suggests the step of "...applying a current to the solder preform until the solder preform melts to seal a metal cover to the insulating base." Applicant disagrees since applying an amount of current to melt the solder associated with the solder ring would also melt the solder used to connect the component 704, thereby destroying the Heschel reference. This amount of current may also overload the component 704. At the very least, once the component 704 is unsoldered, the reliability of the finished device is jeapordized.

Specifically, Heschel discloses:

> "In FIG. 7 is illustrated an embodiment of an optoelectronic assembly according to the present invention. Here, the optoelectronic assembly 701 has a semiconductor base 702 with an optical waveguide 703 formed on or arranged on an upper surface of the base 702. An optoelectronic component 704 is also arranged on the upper surface of the base 702 being optically coupled to the waveguide 703. A semiconductor lid 705 is sealingly arranged on the upper surface of the base 702 via a solder sealing ring 706 and the lid 705 is covering the component 704. The lid 705 has a feed-through metallization 707 providing a current path from the upper surface of the lid 705, via a through-hole and down to the bottom of the lid. The feed-through metallization is electrically connected to the component 704 via a connection metallization 708 on the surface of the base 702 and via a solder interconnect 709." (See column 10, lines 38-53 of Heschel).

In summary, Heschel teaches providing an electrical path to the optoelectronic component 704 from outside the cover, through the cover, through the solder seal 706 and across a connection metalization 708. Placing a current sufficient to melt the solder ring along this electrical path would simply overload the component or various portions of the electrical path. Destroying the Heschel reference is evidence against a suggestion to combine Toy et al. and Heschel. The Examiner has also has failed to show a reasonable expectation of success. Operating Heschel in such a way as to destroy the reference so as to teach the invention is improper since there is no reasonable expectation of success as the end product of this process is destroyed. Accordingly, the Examiner has failed to set forth a proper *prima facie* case of obviousness with respect to claim 1. Accordingly, claim 1 now overcomes the rejection under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Heschel (U.S. 6,818,464).

Claim 2 depends from claim 1 in this application. Therefore, the recitations of claim 1 are included in claim 2. Since all the elements of claims 1 and 2 are not taught by the combination of the Toy et al. (U.S. 5,982,038) and Heschel (U.S. 6,818,464), and since the combination would result in an ineffective optoelectronic device, the rejection of claims 2-4 under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Heschel (U.S. 6,818,464) is also overcome.

Claims 6-7 depend from claim 5. Therefore, claims 6 and 7 include the recitations of claim 5 by their dependency. Claim 5 recites "...applying a current to the solder preform until the solder preform melts to seal a metal cover to the insulating base." The Toy et al. fails to teach this element, as admitted (twice) by the Examiner. The Heschel reference as applied by the

Examiner to suggest this element is improper since the Examiner's application destroys the Heschel reference and there is no reasonable expectation of success, as discussed above with respect to a similar recitation in claim 1. It should be pointed out that there is no teaching in the Heschel reference regarding application of current to melt the solder of the preform. As a result, the combination of Toy et al. and Heschel would fail to make a proper *prima facie* case of obviousness since the combination fails to teach or suggest all the claim limitations.

In addition, one of ordinary skill in the art would not combine Toy et al. and Heschel when contemplating a solution for capping an optoelectronic device. Toy et al. teaches placing a solid metal cap over the electronic devices, and then placing a heat sink on top of a metal cap. The metal cap or the heat sink would prevent any optoelectronic device from functioning, as either the cap or the heat sink would block a light path carrying any optical signal. Toy et al. also provides thermal coupling to the top of the metal cap which could also block a light path. Therefore, the combination of Toy et al. and Heschel would result in an inoperable optoelectronic device: namely, a device that would produce a signal that remains within the cap. Therefore, the combination of Toy et al. and Heschel fails to set forth a proper prima facie case of obviousness since the suggested combination would fail rather than have the required reasonable expectation of success.

Placing the cap of Toy et al. onto an optoelectronic device would also destroy the optoelectronic device. As a result, there is no suggestion or motivation to combine the references as suggested by the Examiner. Accordingly, the Examiner has failed to set forth a proper *prima facie* case of obviousness with respect to claims 6 and 7. Accordingly, claims 6 and 7 now overcome the rejection under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Heschel (U.S. 6,818,464).

**C. 35 USC § 103 Rejection:** Claims 3-4 were rejected under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Ma et al. (U.S. 6,709,898).

**D. Response to 35 USC § 103 Rejection:** In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claims 3-4 depend from claim 1. Therefore, claims 3 and 4 include the recitations of claim 1 by their dependency. Claim 1 recites "A method of manufacturing an optoelectronic package having an insulating base with multiple conductive vias running through the insulating base, and having a metal cover that at least partially encloses an optoelectronic device mounted on the insulating base, the method comprising...applying a current through the multiple conductive vias to heat the solder preform to melt." The Toy et al. reference fails to teach or suggest several elements as now claimed. The Examiner admits that Toy et al. does not teach "...applying a current to the solder preform until the solder preform melts to seal a metal cover to the insulating base." (See top of page 4 of the Office Action dated March 14, 2005). It follows, that the Toy et al. reference, therefore does not teach or suggest applying a current through the multiple conductive vias in the insulating base to heat the solder preform as recited in claim 1.

In addition, neither the Toy et al. reference or the Ma et al. reference teach or suggest an optoelectronic package, or a metal cover that at least partially encloses an optoelectronic device. One of the purposes of Toy et al. is to "provide for a fluid-tight seal." Another "...purpose of this invention is to have a hermetic seal." Accordingly, Toy et al. places a solid cover or cap over the electronics. Toy et al. also teaches placing a heat spreader over the cap. Ma et al. teaches placing a die within a heat spreader. In both instances, the electronics are totally covered. One of ordinary skill in sealing an optoelectronic device that must output signals using light would not look to two devices that teach totally enclosing electronics. Simply put, one of ordinary skill in the art would not combine Toy et al. and Ma et al. when contemplating a solution for capping an optoelectronic device.

In addition, the combination of Toy et al. and Ma et al. would result in an inoperable optoelectronic device: namely, a device that would produce a signal that remains within the cap or within a heat spreader. Therefore, the combination of Toy et al. and Ma et al. fails to set forth

a proper *prima facie* case of obviousness since the suggested combination would fail rather than have the required reasonable expectation of success.

Placing the cap of Toy et al. onto an optoelectronic device would also destroy the optoelectronic device. Similarly, placing the optoelectronic device in the heat spreader as taught by Ma et al. would also destroy the optoelectronic device or render it useless. In each case, the light carrying signal would be trapped within an enclosure. As a result, there is no suggestion or motivation to combine the references as suggested by the Examiner. Accordingly, the Examiner has failed to set forth a proper *prima facie* case of obviousness with respect to claims 3 and 4. Accordingly, claims 3 and 4 now overcomes the rejection under 35 USC § 103(a) as being unpatentable over Toy et al. (U.S. 5,982,038) in view of Heschel (U.S. 6,818,464).

*Conclusion*

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6977 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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